

```
* * * * * FILE 'USPAT' ENTERED AT 11:10:55 ON 15 MAR 1999 * * * * *
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```
Welcome to MESSENGER (APS Text) at USPTO
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The USPTO production files are current through:
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MARCH 09,1999 for U.S. Patent Text Data.
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MARCH 09,1999 for U.S. Current Classification Data.L1
```

```
MARCH 09,1999 for U.S. Patent Image Data.
```

```
AFTER PRODUCTION HOURS (AT 10:00 P.M.) ON WEDNESDAY,
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01/27/99, SEVERAL PTONET DEVICES WILL BE RECONFIGURED TO ENHANCESET COMMAND COMPLETED
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```
NEXT WEEK OPERATIONS. USERS OF PATENT EXAMINER SEARCH
```

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TOOLS MUST RE-BOOT THEIR INDIVIDUAL DESKTOP WORKSTATIONS AT
```

```
THE START OF THE BUSINESS DAY ON THURSDAY, 01/28/99 TO
```

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INSURE THAT NECESSARY FILES ON THEIR WORKSTATION GET UPDATED.
```

```
THIS WILL ENSURE IMMEDIATE AND ACCURATE ACCESS TO ALL OF
```

```
THE PATENT EXAMINER SEARCH TOOLS. THANK YOU FOR YOUR
```

```
COOPERATION
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* * * * *
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```
* PLEASE USE 305-9000 FOR NEW TELEPHONE NUMBER *
```

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* * * * *
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```
Help Desk --> 703-305-9000
```

```
The Help Desk is staffed for APS support 7 days/week.
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Monday through Friday: 6:30am - 9:00pm
```

```
Saturday, Sunday, Holidays: 8:30am - 5:00 pm
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The Help Desk staff at this number will handle all related questions.
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APS
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>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<
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The APS is available:
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```
6:30am - 9:00pm Monday through Friday
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```
7:30am - 5:00pm Saturday, Sunday, Holidays
```

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APS is unavailable Thanksgiving Day, Christmas Day, and New Year's Day.
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** ** ** ** **
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```
WELCOME TO THE
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```
U. S. PATENT TEXT FILE
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** ** ** ****
```

```
=> activate comclm/q
```

```
QUE ((LIBRAR#### OR ARRAY# OR IDENTIF#####
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OR COLLECTION#
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PLURALITIES)(6
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A)(MOLECULE# OR CHEMICAL# OR CHEMIST#####
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OR SYNTHESI####
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OR COMBINATORIAL))/CLM NOT PY<1989
```

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=> set high off
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=> s l1
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```
2020 LIBRAR####/CLM
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64196 ARRAY#/CLM
```

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53354 IDENTIF####/CLM
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17436 COLLECTION#/CLM
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615 COMBINATORIAL/CLM
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21925 RANDOM/CLM
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67910 MIXTURES/CLM
```

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5189 PLURALITIES/CLM
```

```
26662 MOLECULE#/CLM
```

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34400 CHEMICAL#/CLM
```

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676 CHEMIST#####/CLM
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14656 SYNTHEI#####/CLM
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615 COMBINATORIAL/CLM
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COLLECTION# OR COM
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OR COMBINATORIAL
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COLLECTION# OR COM
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PLURALITIES)(6A)(MOLECULE#
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CHEMICAL# OR CHEMIST##### OR SYNTHESI####
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OR COMBINATORIAL
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CLM NOT PY<1989
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=> set high on
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SET COMMAND COMPLETED
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```
=> s l2 and (cleav#### or releas### or separat####) (5a)
```

```
(support# of link#)
```

```
46424 CLEAV####
```

```
537964 RELEAS####
```

```
1283318 SEPARAT####
```

```
814989 SUPPORT#
```

```
182732 LINK#
```

```
1731 SUPPORT# OF LINK#
```

```
(SUPPORT#{1W}LINK#)
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```
27 (CLEAV#### OR RELEAS### OR SEPARAT####) (5A)
```

```
(SUPPORT# OF L
```

INK

#)
L3 0 L2 AND (CLEAV#### OR RELEAS### OR
SEPARAT####) (5A) (SUPPORT
T#

OF LINK#)

=> s 12 and (cleav#### or releas### or separat####) (10a)
(support# of link?)

46424 CLEAV####
537964 RELEAS###
1283318 SEPARAT####
814989 SUPPORT#
379703 LINK?

2825 SUPPORT# OF LINK?

(SUPPORT#(1W)LINK?)

104 (CLEAV#### OR RELEAS### OR SEPARAT####)

(10A) (SUPPORT# OF
LIN

K?)

L4 1 L2 AND (CLEAV#### OR RELEAS### OR
SEPARAT####) (10A) (SUPPO
RT#

OF LINK?)

=> d cit hit

1. 5,877,214, Mar. 2, 1999, Polyaryl-poly(ethylene glycol) DETD(13)

supports for
solution-phase combinatorial synthesis; Ronald M. Kim,
514/571, 576, 650;
562/42, 426, 452, 470; 564/337, 346, 348, 355; 568/62, 607,
609 [IMAGE
AVAILABLE]

US PAT NO: 5,877,214 [IMAGE AVAILABLE]
1 of 1

SUMMARY:

BSUM(51)

By the term "synthon" is meant any chemical moiety which
may be
synthetically manipulated to permit its covalent linking to
a support or
to another synthon. To facilitate the separation of the
synthon from the
polyvalent support it is preferred that the synthon be
attached via a
chemically **cleavable** linker. Upon **cleavage** from the
support,
the **linked** synthons comprise discrete molecular
entities which may be
analyzed for their biological activity or physiochemical
properties, or
which may be subjected to further chemical modification.

=> d date

1 of 1

TITLE: Polyaryl-poly(ethylene glycol) supports for
solution-phase combinatorial synthesis

US PAT NO: 5,877,214 DATE ISSUED: Mar.
2, 1999

[IMAGE AVAILABLE]
APPL-NO: 08/923,299 DATE FILED: Sep.
4, 1997

=> s 12 and (cleav#### or releas### or separat####) (p)
(support# of link?)

46424 CLEAV####
537964 RELEAS###
1283318 SEPARAT####
814989 SUPPORT#
379703 LINK?

2825 SUPPORT# OF LINK?

(SUPPORT#(1W)LINK?)

384 (CLEAV#### OR RELEAS### OR SEPARAT####) (P)
(SUPPORT# OF LI
NK?

)

L5 6 L2 AND (CLEAV#### OR RELEAS### OR
SEPARAT####) (P) (SUPPORT
O

F LINK?)

=> s 15 not 14

L6 5 L5 NOT L4

=> d 1-5 cit kwic

1. 5,846,839, Dec. 8, 1998, Methods for hard-tagging an
encoded
synthetic library; Mark A. Gallop, et al., 436/518;
435/7.1; 436/85, 501,
528, 531 [IMAGE AVAILABLE]

US PAT NO: 5,846,839 [IMAGE AVAILABLE]
1 of 5

L6:

DETDESC:

Reversible covalent **cleavable** linkages can be used to
attach the
molecules to the support. Examples of suitable reversible
chemical
linkages include (1) a sulfoester linkage provided by,
e.g., a thiolated

L4: tagged-molecule and a N-hydroxy-succinimidyl **support**,
which
linkage can be controlled by adjustment of the ammonium
hydroxide
concentration; (2) a benzylhydrl or benzylamide linkage
provided by,
e.g., a . . . from Sigma), which linkage can be
controlled by
adjustment of the DTT (dithiothreitol) concentration; and
(4) linkers
which can be **cleaved** with a transition metal (e.g.
HYCRAM).

2. 5,751,629, May 12, 1998, Remotely programmable matrices
with
memories; Michael P. Nova, et al., 365/151, 153 [IMAGE
AVAILABLE]

US PAT NO: 5,751,629 [IMAGE AVAILABLE]
2 of 5

L6:

SUMMARY:

BSUM(8)

Following hybridization of a detection oligonucleotide
L4: with a target,
the resulting signal-generating hybrid molecules must be
separated
from unreacted target and detection oligonucleotides. In
order to do so,
many of the commonly used assays immobilize the target. .
. adducts
formed in solution [see, e.g., EP 276,302 and Gingeras et
al. (1989)
Proc. Natl. Acad. Sci. USA 86:1173]. Solid **supports**
with **linked**
oligonucleotides are also used in methods of affinity
purification.
Following hybridization or affinity purification, however,
if
identification of the linked. . .

3. 5,663,046, Sep. 2, 1997, Synthesis of combinatorial
libraries; John

J. Baldwin, et al., 435/6, 7.1; 436/501, 518, 531, 533;
530/333, 334;
536/18.5, 25.3 [IMAGE AVAILABLE]

US PAT NO: 5,663,046 [IMAGE AVAILABLE]
3 of 5

SUMMARY:

BSUM(71)

The . . . Y. Compound 7 is then either exposed to UV light (.about.360 nm) in a lower alkanol such as MeOH to **cleave** the protected form of the compounds of Formula II from the **support**/**linker** complex or first treated with TFA/thioanisole/EDT to remove the protecting groups on the R.sup.2 sidechains and then exposed to UV light in a lower alkanol such as MeOH to **cleave** compound II. ##STR3##

4. 5,604,097, Feb. 18, 1997, Methods for sorting polynucleotides using oligonucleotide tags; Sydney Brenner, 435/6; 536/25.4 [IMAGE AVAILABLE]

US PAT NO: 5,604,097 [IMAGE AVAILABLE]
4 of 5

DETDDESC:

DETD(41)

Tag complements may be used with the solid phase support that they are synthesized on, or they may be **separately** synthesized and attached to a solid phase support for use, e.g. as disclosed by Lund et al, Nucleic Acids Research, . . . employed depends on the conditions under which the tags are used. For example, in applications involving successive processing with enzymes, **supports** and **linkers** that minimize steric hinderance of the enzymes and that facilitate access to substrate are preferred. Exemplary linking moieties are disclosed.

5. 5,549,974, Aug. 27, 1996, Methods for the solid phase synthesis of thiazolidinones, metathiazanones, and derivatives thereof; Christopher P. Holmes, 428/403, 406, 407, 411.1, 426, 457; 544/54; 548/182 [IMAGE AVAILABLE]

US PAT NO: 5,549,974 [IMAGE AVAILABLE]
5 of 5

DETDDESC:

DETD(143)

Reversible . . . Examples of suitable reversible chemical linkages include (1) a sulfoester linkage provided by, e.g., a thiolated tagged-molecule and a N-hydroxysuccinimidyl **support**, which **linkage** can be controlled by adjustment of the ammonium hydroxide concentration; (2) an benzylhydryl or benzylamide linkage provided by, e.g., a . . . from Sigma), which linkage can be controlled by adjustment of the DTT (dithiothreitol) concentration; and (4) linkers

which can be **cleaved** with a transition metal (i.e. HYCRAM).

=> d 1-5cit date

L6: '1-5CIT' IS NOT A VALID FORMAT FOR FILE 'USPAT'
ENTER DISPLAY FORMAT (CIT):end

=> d 1-5 cit date

1. 5,846,839, Dec. 8, 1998, Methods for hard-tagging an encoded synthetic library; Mark A. Gallop, et al., 436/518; 435/7.1; 436/85, 501, 528, 531 [IMAGE AVAILABLE]

1 of 5

TITLE: Methods for hard-tagging an encoded synthetic library

US PAT NO: 5,846,839 DATE ISSUED: Dec. 8, 1998

[IMAGE AVAILABLE]

APPL-NO: 08/577,203 DATE FILED: Dec. 22, 1995

2. 5,751,629, May 12, 1998, Remotely programmable matrices with memories; Michael P. Nova, et al., 365/151, 153 [IMAGE AVAILABLE]

2 of 5

TITLE: Remotely programmable matrices with memories
US PAT NO: 5,751,629 DATE ISSUED: May 12, 1998

[IMAGE AVAILABLE]

APPL-NO: 08/484,504 DATE FILED: Jun. 7, 1995

REL-US-DATA: Continuation-in-part of Ser. No. 428,662, Apr. 25, 1995.

3. 5,663,046, Sep. 2, 1997, Synthesis of combinatorial libraries; John J. Baldwin, et al., 435/6, 7.1; 436/501, 518, 531, 533; 530/333, 334; 536/18.5, 25.3 [IMAGE AVAILABLE]

3 of 5

TITLE: Synthesis of combinatorial libraries
US PAT NO: 5,663,046 DATE ISSUED: Sep. 2, 1997

[IMAGE AVAILABLE]

APPL-NO: 08/263,804 DATE FILED: Jun. 22, 1994

4. 5,604,097, Feb. 18, 1997, Methods for sorting polynucleotides using oligonucleotide tags; Sydney Brenner, 435/6; 536/25.4 [IMAGE AVAILABLE]

4 of 5

TITLE: Methods for sorting polynucleotides using oligonucleotide tags

US PAT NO: 5,604,097 DATE ISSUED: Feb. 18, 1997

[IMAGE AVAILABLE]

APPL-NO: 08/358,810 DATE FILED: Dec. 19, 1994

REL-US-DATA: Continuation-in-part of Ser. No. 322,348, Oct. 13, 1994, abandoned.

5. 5,549,974, Aug. 27, 1996, Methods for the solid phase synthesis of thiazolidinones, metathiazanones, and derivatives thereof; Christopher P.

Holmes, 428/403, 406, 407, 411.1, 426, 457; 544/54; 548/182

[IMAGE
AVAILABLE]

=> d 1-150 cit date

5 of 5

TITLE: Methods for the solid phase synthesis of
thiazolidinones,
metathiazanones, and derivatives thereof

US PAT NO: 5,549,974
27, 1996

DATE ISSUED: Aug. 1. 5,877,214, Mar. 2, 1999, Polyaryl-poly(ethylene glycol)
supports for
solution-phase combinatorial synthesis; Ronald M. Kim,
562/42, 426, 452, 470; 564/337, 346, 348, 355; 568/62, 607,
609 [IMAGE
AVAILABLE]

APPL-NO: 08/265,090
23, 1994

DATE FILED: Jun. 514/571, 576, 650;
562/42, 426, 452, 470; 564/337, 346, 348, 355; 568/62, 607,
609 [IMAGE
AVAILABLE]

=> d saved

NAME	CREATED	NOTES/TITLE	L9:
-----	-----	-----	1 of 50
COMCLM/Q	02 FEB 1999	QUERY CREATED IN FILE USPAT	TITLE: Polyaryl-poly(ethylene glycol) supports for
COMLIB/Q	12 MAY 1998	QUERY CREATED IN FILE USPAT	combinatorial synthesis
PCTUS9715493/L	08 OCT 1997	5 L-NUMBERS	US PAT NO: 5,877,214 DATE ISSUED: Mar.
SAVEALL/L	17 FEB 1998	7 L-NUMBERS	2, 1999 [IMAGE AVAILABLE]
TEST/Q	01 OCT 1997	QUERY CREATED IN FILE USPAT	APPL-NO: 08/923,299 DATE FILED: Sep.

=> activate comlib/q

L7 QUE (LIBRAR#### OR ARRAY# OR MULTIP##### 2. 5,876,930, Mar. 2, 1999, Hybridization assay using
OR COLLECTION# OR COMBINATORIAL OR RANDOM) (6A) (MOLECULE# fluorescence probe; Kenneth J. Livak, et al., 435/6, 5,
OR CHEMICAL# 91.1, 91.2;
OR CHEMIST##### OR SYNTH##### OR 536/24.3, 24.32, 24.33, 25.3, 25.32, 26.6 [IMAGE AVAILABLE]

=> set high off

SET COMMAND COMPLETED

=> s 17

22089 LIBRAR####
193467 ARRAY#
568027 MULTIP#####
114017 COLLECTION#
4323 COMBINATORIAL
157587 RANDOM
176703 MOLECULE#
438541 CHEMICAL#
96056 CHEMIST#####
373500 SYNTH#####
4323 COMBINATORIAL
L8 14398 (LIBRAR#### OR ARRAY# OR MULTIP##### OR
COLLECTION# OR COM
BIN

ATORIAL OR RANDOM) (6A) (MOLECULE# OR
CHEMICAL# OR CHEMIST##

OR SYNTH##### OR COMBINATORIAL)

=> set high on

SET COMMAND COMPLETED

=> s 18 and (cleav#### or releas### or separat####) (p)
(support# of link?)

46424 CLEAV####
537964 RELEAS####
1283318 SEPARAT####
814989 SUPPORT#
379703 LINK?
2825 SUPPORT# OF LINK?
(SUPPORT#(1W)LINK?)
384 (CLEAV#### OR RELEAS### OR SEPARAT####) (P)
(SUPPORT# OF LI
NK?
)
L9 50 L8 AND (CLEAV#### OR RELEAS### OR
SEPARAT####) (P) (SUPPORT
O
F LINK?)

3 of 50
TITLE: Method for solution phase synthesis of
oligonucleotides
and peptides
US PAT NO: 5,874,532 DATE ISSUED: Feb.
23, 1999 [IMAGE AVAILABLE]
APPL-NO: 08/780,517 DATE FILED: Jan.
8, 1997
4. 5,874,214, Feb. 23, 1999, Remotely programmable
matrices with
memories; Michael P. Nova, et al., 435/6; 365/151, 153;
422/58, 68.1,
82.01, 82.05, 82.12; 424/422, 489; 435/7.8, 7.92 [IMAGE
AVAILABLE]
4 of 50
TITLE: Remotely programmable matrices with memories
US PAT NO: 5,874,214 DATE ISSUED: Feb.
23, 1999 [IMAGE AVAILABLE]
APPL-NO: 08/538,387 DATE FILED: Oct.
3, 1995
REL-US-DATA: Continuation-in-part of Ser. No. 480,147,
Jun. 7, 1995,

Ser. No. 484,486, Jun. 7, 1995, Ser. No. 484,504, Jun. 7, 1995, Pat. No. 5,751,629, Ser. No. 480,196, Jun. 7, 1995, Ser. No. 473,660, Jun. 7, 1995, and Ser. No. 428,662, Apr. 25, 1995, Pat. No. 5,741,462, said Ser. No. 480,147, Ser. No. 484,486, Ser. No. 484,504, Ser. No. 480,196, and Ser. No. 473,660, each Ser. No. is a continuation-in-part of Ser. No. 428,662.

5. 5,872,244, Feb. 16, 1999, 3' protected nucleotides for enzyme catalyzed template-independent creation of phosphodiester bonds; Andrew C. Hiatt, et al., 536/26.26, 26.6, 26.7 [IMAGE AVAILABLE]

5 of 50
TITLE: 3' protected nucleotides for enzyme catalyzed template-independent creation of phosphodiester bonds
US PAT NO: 5,872,244
16, 1999
[IMAGE AVAILABLE]

APPL-NO: 08/486,535
7, 1995
REL-US-DATA: Continuation-in-part of Ser. No. 300,484, Sep. 2, 1994.

6. 5,864,031, Jan. 26, 1999, Process for preparing 5-dithio-modified oligonucleotides; Sandra E. Russo-Rodriguez, et al., 536/25.34, 25.3 [IMAGE AVAILABLE]

6 of 50
TITLE: Process for preparing 5-dithio-modified oligonucleotides
US PAT NO: 5,864,031
26, 1999
[IMAGE AVAILABLE]

APPL-NO: 08/282,383
29, 1994

7. 5,863,722, Jan. 26, 1999, Method of sorting polynucleotides; Sydney Brenner, 435/6; 536/24.3 [IMAGE AVAILABLE]

7 of 50
TITLE: Method of sorting polynucleotides
US PAT NO: 5,863,722
26, 1999
[IMAGE AVAILABLE]

APPL-NO: 08/485,105
7, 1995
REL-US-DATA: Continuation of Ser. No. 359,295, Dec. 19, 1994, which is a continuation-in-part of Ser. No. 322,348, Oct. 13, 1994, abandoned.

8. 5,861,532, Jan. 19, 1999, Solid-phase synthesis of N-alkyl amides; Edward G. Brown, et al., 564/142; 436/85, 86; 564/133, 134, 135, 136, 137, 139 [IMAGE AVAILABLE]

8 of 50
TITLE: Solid-phase synthesis of N-alkyl amides
US PAT NO: 5,861,532
19, 1999
[IMAGE AVAILABLE]

APPL-NO: 08/813,019
4, 1997

9. 5,859,233, Jan. 12, 1999, Synthons for synthesis of oligonucleotide N3-P5 phosphoramidates; Bernard L. Hirschbein, et al., 536/26.1, 26.12, 26.14 [IMAGE AVAILABLE]

9 of 50
TITLE: Synthons for synthesis of oligonucleotide N3-P5 phosphoramidates
US PAT NO: 5,859,233
12, 1999
[IMAGE AVAILABLE]

APPL-NO: 08/771,789
20, 1996
REL-US-DATA: Continuation-in-part of Ser. No. 663,918, Jun. 14, 1996, which is a continuation-in-part of Ser. No. 603,566, Feb. 21, 1996, Pat. No. 5,684,143.

10. 5,846,841, Dec. 8, 1998, Motif Libraries; Nikolai Sepetov, et al., 436/518; 435/7.1; 436/501; 530/333, 334 [IMAGE AVAILABLE]

10 of 50
TITLE: Motif Libraries
US PAT NO: 5,846,841
8, 1998
[IMAGE AVAILABLE]

APPL-NO: 08/754,878
22, 1996
REL-US-DATA: Continuation of Ser. No. 246,435, May 20, 1994, abandoned.

11. 5,846,839, Dec. 8, 1998, Methods for hard-tagging an encoded synthetic library; Mark A. Gallop, et al., 435/7.1; 436/85, 501, 528, 531 [IMAGE AVAILABLE]

11 of 50
TITLE: Methods for hard-tagging an encoded synthetic library
US PAT NO: 5,846,839
8, 1998
[IMAGE AVAILABLE]

APPL-NO: 08/577,203
22, 1995

12. 5,846,731, Dec. 8, 1998, Peralkylated oligopeptide mixtures; Richard A. Houghten, et al., 435/7.1, 7.2, 7.32; 436/501, 518, 536; 530/323, 332, 333, 334, 345 [IMAGE AVAILABLE]

12 of 50
TITLE: Peralkylated oligopeptide mixtures
US PAT NO: 5,846,731
8, 1998
[IMAGE AVAILABLE]

APPL-NO: 08/079,144
17, 1993

13. 5,846,719, Dec. 8, 1998, Oligonucleotide tags for sorting and identification; Sydney Brenner, et al., 435/6; 536/23.1, 24.2, 24.3, 25.4 [IMAGE AVAILABLE]

13 of 50
TITLE: Oligonucleotide tags for sorting and identification
US PAT NO: 5,846,719
8, 1998
[IMAGE AVAILABLE]

APPL-NO: 08/659,453	DATE FILED: Jun.	APPL-NO: 08/731,362	DATE FILED: Oct.
6, 1996		11, 1996	
REL-US-DATA: Continuation-in-part of Ser. No. 358,810, Dec. 19, 1994,		REL-US-DATA: Continuation-in-part of Ser. No. 670,713, Jun. 18, 1996,	
Pat. No. 5,604,097, which is a continuation-in-part of Ser. No. 322,348, Oct. 13, 1994, abandoned.		and a continuation-in-part of Ser. No. 393,318, Feb. 22, 1995, abandoned, which is a continuation-in-part of Ser. No. 265,578, Jun. 23, 1994, abandoned.	
14. 5,840,485, Nov. 24, 1998, Topologically segregated, encoded solid phase libraries; Michal Lebl, et al., 435/6, 7.1; 436/518; 530/300, 323; 536/23.1 [IMAGE AVAILABLE]		18. 5,808,045, Sep. 15, 1998, Compositions for enzyme catalyzed template-independent creation of phosphodiester bonds using protected nucleotides; Andrew C. Hiatt, et al., 536/26.26, 26.7, 26.71, 26.72, 26.74, 26.8 [IMAGE AVAILABLE]	
14 of 50		L9: 18 of 50	
TITLE: Topologically segregated, encoded solid phase libraries		TITLE: Compositions for enzyme catalyzed template-independent creation of phosphodiester bonds using protected nucleotides	
US PAT NO: 5,840,485	DATE ISSUED: Nov. 24, 1998	US PAT NO: 5,808,045	DATE ISSUED: Sep. 15, 1998
[IMAGE AVAILABLE]		[IMAGE AVAILABLE]	
APPL-NO: 08/249,830	DATE FILED: May 26, 1994	APPL-NO: 08/486,897	DATE FILED: Jun. 7, 1995
REL-US-DATA: Continuation-in-part of Ser. No. 68,327, May 27, 1993, abandoned.		REL-US-DATA: Continuation-in-part of Ser. No. 300,484, Sep. 2, 1994, abandoned.	
15. 5,824,793, Oct. 20, 1998, Solid phase synthesis of oligonucleotide N3'-P5' phosphoramidates; Bernard L. Hirschbein, et al., 536/25.34, 25.3, 25.33 [IMAGE AVAILABLE]		L9: 19. 5,763,594, Jun. 9, 1998, 3' protected nucleotides for enzyme catalyzed template-independent creation of phosphodiester bonds; Andrew C. Hiatt, et al., 536/25.3; 435/6; 536/25.1, 25.31, 25.32, 25.33, 25.34, 26.1 [IMAGE AVAILABLE]	
15 of 50		L9: 19 of 50	
TITLE: Solid phase synthesis of oligonucleotide N3'-P5' phosphoramidates		TITLE: 3' protected nucleotides for enzyme catalyzed template-independent creation of phosphodiester bonds	
US PAT NO: 5,824,793	DATE ISSUED: Oct. 20, 1998	US PAT NO: 5,763,594	DATE ISSUED: Jun. 9, 1998
[IMAGE AVAILABLE]		[IMAGE AVAILABLE]	
APPL-NO: 08/663,918	DATE FILED: Jun. 14, 1996	APPL-NO: 08/486,913	DATE FILED: Jun. 7, 1995
REL-US-DATA: Continuation-in-part of Ser. No. 603,566, Feb. 21, 1996, Pat. No. 5,684,143.		REL-US-DATA: Continuation-in-part of Ser. No. 300,484, Sep. 2, 1994.	
16. 5,821,130, Oct. 13, 1998, Combinatorial dihydrobenzopyran library; John J. Baldwin, et al., 436/518, 523, 524, 525, 526, 527, 528, 529, 530, 531; 564/183, 184, 186 [IMAGE AVAILABLE]		20. 5,763,193, Jun. 9, 1998, Peralkylated oligopeptide mixtures; Richard A. Houghten, et al., 435/7.1, 7.2, 7.21; 436/501, 518 [IMAGE AVAILABLE]	
16 of 50		L9: 20 of 50	
TITLE: Combinatorial dihydrobenzopyran library		TITLE: Peralkylated oligopeptide mixtures	
US PAT NO: 5,821,130	DATE ISSUED: Oct. 13, 1998	US PAT NO: 5,763,193	DATE ISSUED: Jun. 9, 1998
[IMAGE AVAILABLE]		[IMAGE AVAILABLE]	
APPL-NO: 08/552,698	DATE FILED: Nov. 3, 1995	APPL-NO: 08/577,846	DATE FILED: Dec. 22, 1995
REL-US-DATA: Continuation-in-part of Ser. No. 436,120, May 8, 1995, abandoned, which is a continuation-in-part of Ser. No. 239,302, May 6, 1994, abandoned.		REL-US-DATA: Division of Ser. No. 257,782, Jun. 9, 1994, Pat. No. 5,480,971, which is a continuation-in-part of Ser. No. 79,144, Jun. 17, 1993.	
17. 5,817,751, Oct. 6, 1998, Method for synthesis of diketopiperazine and diketomorpholine derivatives; Anna Katrin Szardenings, et al., 530/317, 334; 544/170 [IMAGE AVAILABLE]		L9: 21. 5,756,810, May 26, 1998, Process of preparing 3-nitro benzoate compounds in lower alkanol; John J. Baldwin, et al., 560/20, 23 [IMAGE AVAILABLE]	
17 of 50			
TITLE: Method for synthesis of diketopiperazine and diketomorpholine derivatives			
US PAT NO: 5,817,751	DATE ISSUED: Oct. 6, 1998		
[IMAGE AVAILABLE]			

21 of 50
 TITLE: Process of preparing 3-nitro benzoate compounds in lower alkanol
 US PAT NO: 5,756,810
 26, 1998
 [IMAGE AVAILABLE]
 APPL-NO: 08/714,065
 11, 1996
 PCT-NO: PCT/US95/03223
 10, 1995
 11, 1996
 11, 1996
 PCT-PUB-NO: WO95/24186
 14, 1995

22. 5,751,629, May 12, 1998, Remotely programmable matrices with memories; Michael P. Nova, et al., 365/151, 153 [IMAGE AVAILABLE]

22 of 50
 TITLE: Remotely programmable matrices with memories
 US PAT NO: 5,751,629
 12, 1998
 [IMAGE AVAILABLE]
 APPL-NO: 08/484,504
 7, 1995
 REL-US-DATA: Continuation-in-part of Ser. No. 428,662, Apr. 25, 1995.

23. 5,741,462, Apr. 21, 1998, Remotely programmable matrices with memories; Michael P. Nova, et al., 422/68.1, 50, 57, 58, 82.05, 99, 102, 104; 435/5, 6, 7.1, 7.2, 7.9, 91.1; 436/161, 163, 501, 518, 523, 524, 528; 702/19, 22, 27, 30 [IMAGE AVAILABLE]

23 of 50
 TITLE: Remotely programmable matrices with memories
 US PAT NO: 5,741,462
 21, 1998
 [IMAGE AVAILABLE]
 APPL-NO: 08/428,662
 25, 1995

24. 5,723,591, Mar. 3, 1998, Self-quenching fluorescence probe; Kenneth J. Livak, et al., 536/22.1, 23.1, 24.3, 25.3, 25.32 [IMAGE AVAILABLE]

24 of 50
 TITLE: Self-quenching fluorescence probe
 US PAT NO: 5,723,591
 3, 1998
 [IMAGE AVAILABLE]
 APPL-NO: 08/559,405
 15, 1995
 REL-US-DATA: Continuation of Ser. No. 340,558, Nov. 16, 1994, Pat. No. 5,538,848.

25. 5,714,606, Feb. 3, 1998, Pyrrolidine-containing monomers and oligomers; Oscar L. Acevedo, et al., 544/243, 35, 102, 104, 244, 262, 264, 267, 277, 299, 309, 311, 313, 314, 317, 335; 548/112, 314.7, 361.1, 361.5, 362.1, 362.5, 364.1, 412, 413, 414, 440, 441, 443, 444, 446, 465, 466, 467, 518, 519, 523, 524, 530, 531, 542, 546 [IMAGE AVAILABLE]

25 of 50

L9: TITLE: Pyrrolidine-containing monomers and oligomers
 US PAT NO: 5,714,606
 3, 1998
 [IMAGE AVAILABLE]
 APPL-NO: 08/669,505
 15, 1996
 PCT-NO: PCT/US95/00356
 Sep. 11, 1995
 Mar. 15, 1996
 Sep. 15, 1996
 PCT-PUB-NO: WO95/18792
 Sep. 13, 1995
 REL-US-DATA: Continuation-in-part of Ser. No. 180,134, Sep. Jan. 11, 1994, Pat. No. 5,519,134.

26. 5,714,597, Feb. 3, 1998, Use of carbocation scavenger during oligonucleotide synthesis; Vasulinga Ravikumar, et al., 536/25.31, 25.3, 25.33, 25.34 [IMAGE AVAILABLE]

L9: TITLE: Use of carbocation scavenger during oligonucleotide synthesis
 US PAT NO: 5,714,597
 3, 1998
 [IMAGE AVAILABLE]
 APPL-NO: 08/613,036
 8, 1996
 REL-US-DATA: Continuation of Ser. No. 271,181, Jul. 7, 1994, Pat. No. 5,510,476.

27. 5,714,332, Feb. 3, 1998, Anti .alpha.-gal screening technique; Alexander R. Lussow, et al., 435/7.1, 7.2, 7.21; 436/519; 530/300 [IMAGE AVAILABLE]

L9: AVAILABLE]

28. 5,702,672, Dec. 30, 1997, Apparatus and method for multiple simultaneous synthesis; Sheila H. H. DeWitt, et al., 422/131, 130, 196; 435/304.1, 305.2; 530/333, 334 [IMAGE AVAILABLE]

L9: TITLE: Apparatus and method for multiple simultaneous synthesis
 US PAT NO: 5,702,672
 30, 1997
 [IMAGE AVAILABLE]
 APPL-NO: 08/540,512
 10, 1995
 REL-US-DATA: Continuation-in-part of Ser. No. 430,696, Apr. 28, 1995, Pat. No. 5,612,002, which is a division of Ser. No. 217,347, Mar. 24, 1994, abandoned, which is a division of Ser. No. 12,557, Feb. 2, 1993, Pat. No. 5,324,483, which is a continuation-in-part of Ser. No. 958,383, Oct. 8, 1992, abandoned.

29. 5,695,934, Dec. 9, 1997, Massively parallel sequencing of sorted polynucleotides; Sydney Brenner, 435/6; 536/24.3 [IMAGE AVAILABLE]

TITLE: Massively parallel sequencing of sorted polynucleotides
US PAT NO: 5,695,934
DATE ISSUED: Dec. 9, 1997
[IMAGE AVAILABLE]

APPL-NO: 08/359,295
DATE FILED: Dec. 19, 1994
REL-US-DATA: Continuation-in-part of Ser. No. 322,348, Oct. 13, 1994, abandoned.

30. 5,688,997, Nov. 18, 1997, Process for preparing intermediates for a combinatorial dihydrobenzopyran library; John J. Baldwin, et al., 562/435; 435/7.1; 560/21 [IMAGE AVAILABLE]

TITLE: Process for preparing intermediates for a combinatorial dihydrobenzopyran library
US PAT NO: 5,688,997
DATE ISSUED: Nov. 18, 1997
[IMAGE AVAILABLE]

APPL-NO: 08/482,488
DATE FILED: Jun. 7, 1995
REL-US-DATA: Division of Ser. No. 436,120, May 8, 1995, which is a continuation-in-part of Ser. No. 239,302, May 6, 1994, abandoned.

31. 5,663,046, Sep. 2, 1997, Synthesis of combinatorial libraries; John J. Baldwin, et al., 435/6, 7.1; 436/501, 518, 531, 533; 530/333, 334; 536/18.5, 25.3 [IMAGE AVAILABLE]

TITLE: Synthesis of combinatorial libraries
US PAT NO: 5,663,046
DATE ISSUED: Sep. 2, 1997
[IMAGE AVAILABLE]

APPL-NO: 08/263,804
DATE FILED: Jun. 22, 1994

32. 5,654,413, Aug. 5, 1997, Compositions for sorting polynucleotides; Sydney Brenner, 536/22.1; 435/6, 320.1; 536/24.2 [IMAGE AVAILABLE]

TITLE: Compositions for sorting polynucleotides
US PAT NO: 5,654,413
DATE ISSUED: Aug. 5, 1997
[IMAGE AVAILABLE]

APPL-NO: 08/484,712
DATE FILED: Jun. 7, 1995
REL-US-DATA: Continuation of Ser. No. 358,810, Dec. 19, 1994, which is a continuation-in-part of Ser. No. 322,348, Oct. 13, 1994, abandoned.

33. 5,635,598, Jun. 3, 1997, Selectively cleavable linkers based on iminodiacetic acid esters for solid phase peptide synthesis; Michael Lebl, et al., 530/334, 343, 345 [IMAGE AVAILABLE]

TITLE: Selectively cleavable linkers based on iminodiacetic acid esters for solid phase peptide synthesis
US PAT NO: 5,635,598
DATE ISSUED: Jun. 3, 1997
[IMAGE AVAILABLE]

APPL-NO: 08/263,289
DATE FILED: Jun. 21, 1993
REL-US-DATA: Continuation-in-part of Ser. No. 81,997, abandoned, which is a continuation-in-part of Ser. No. 80,388, Jun. 21, 1993, abandoned.

34. 5,635,400, Jun. 3, 1997, Minimally cross-hybridizing sets of oligonucleotide tags; Sydney Brenner, 435/320.1, 6; 536/22.1, 24.2 [IMAGE AVAILABLE]

TITLE: Minimally cross-hybridizing sets of oligonucleotide tags
US PAT NO: 5,635,400
DATE ISSUED: Jun. 3, 1997
[IMAGE AVAILABLE]

APPL-NO: 08/478,238
DATE FILED: Jun. 7, 1995
REL-US-DATA: Continuation of Ser. No. 358,810, Dec. 19, 1994, which is a continuation-in-part of Ser. No. 322,348, Oct. 13, 1994, abandoned.

35. 5,618,825, Apr. 8, 1997, Combinatorial sulfonamide library; John J. Baldwin, et al., 514/317, 330; 546/227, 229, 232, 233, 234, 235; 548/543, 556, 569 [IMAGE AVAILABLE]

TITLE: Combinatorial sulfonamide library
US PAT NO: 5,618,825
DATE ISSUED: Apr. 8, 1997
[IMAGE AVAILABLE]

APPL-NO: 08/482,489
DATE FILED: Jun. 7, 1995
REL-US-DATA: Division of Ser. No. 212,024, Mar. 11, 1994.

36. 5,604,097, Feb. 18, 1997, Methods for sorting polynucleotides using oligonucleotide tags; Sydney Brenner, 435/6; 536/25.4 [IMAGE AVAILABLE]

TITLE: Methods for sorting polynucleotides using oligonucleotide tags
US PAT NO: 5,604,097
DATE ISSUED: Feb. 18, 1997
[IMAGE AVAILABLE]

APPL-NO: 08/358,810
DATE FILED: Dec. 19, 1994
REL-US-DATA: Continuation-in-part of Ser. No. 322,348, Oct. 13, 1994, abandoned.

37. 5,587,471, Dec. 24, 1996, Method of making oligonucleotide libraries; Phillip D. Cook, et al., 536/25.3, 25.4, 25.41 [IMAGE AVAILABLE]

TITLE: Method of making oligonucleotide libraries
US PAT NO: 5,587,471
DATE ISSUED: Dec. 24, 1996
[IMAGE AVAILABLE]

APPL-NO: 08/179,972 11, 1994	DATE FILED: Jan. Holmes, 428/403, 406, 407, 411.1, 426, 457; 544/54; 548/182 [IMAGE AVAILABLE]	
38. 5,567,391, Oct. 22, 1996, Apparatus for multiple simultaneous synthesis; Sheila H. H. DeWitt, et al., 422/131, 130, 196; 435/304.1, 305.2 [IMAGE AVAILABLE]	41 of 50 TITLE: Methods for the solid phase synthesis of thiazolidinones, metathiazanones, and derivatives thereof	L9:
38 of 50 TITLE: Apparatus for multiple simultaneous synthesis US PAT NO: 5,567,391 22, 1996	L9: US PAT NO: 5,549,974 27, 1996 DATE ISSUED: Aug. [IMAGE AVAILABLE] APPL-NO: 08/265,090 DATE FILED: Jun. Oct. 23, 1994	
APPL-NO: 08/464,161 5, 1995 REL-US-DATA: Continuation of Ser. No. 430,696, Apr. 28, 1995, which is a continuation of Ser. No. 217,347, Mar. 24, 1994, abandoned, which is a division of Ser. No. 12,557, Feb. 2, 1993, Pat. No. 5,324,483, Jun. 28, 1994, which is a continuation-in-part of Ser. No. 958,383, Oct. 8, 1992, abandoned.	42. 5,525,735, Jun. 11, 1996, Methods for synthesizing diverse collections of pyrrolidine compounds; Mark A. Gallop, et al., 548/533; 435/7.92; 436/518; 530/323; 548/400, 406, 453, 517, 518, 532, 536, 537, 541, 560, 565, 566, 570, 577 [IMAGE AVAILABLE]	L9:
39. 5,565,173, Oct. 15, 1996, Apparatus and method for multiple simultaneous synthesis; Sheila H. H. DeWitt, et al., 422/131, 130, 196; 435/304.1, 305.2 [IMAGE AVAILABLE]	42 of 50 TITLE: Methods for synthesizing diverse collections of pyrrolidine compounds US PAT NO: 5,525,735 11, 1996 DATE ISSUED: Jun. [IMAGE AVAILABLE] APPL-NO: 08/354,309 DATE FILED: Dec. 12, 1994 REL-US-DATA: Continuation-in-part of Ser. No. 264,136, Jun. 22, 1994.	
39 of 50 TITLE: Apparatus and method for multiple simultaneous synthesis US PAT NO: 5,565,173 15, 1996	L9: 43. 5,510,476, Apr. 23, 1996, Carbocation scavenging during oligonucleotide synthesis; Vasulinga Ravikumar, et al., 536/25.31, 25.3, 25.34 [IMAGE AVAILABLE] Oct. 25.33, 25.34 [IMAGE AVAILABLE]	
APPL-NO: 08/461,998 5, 1995 REL-US-DATA: Continuation of Ser. No. 430,696, Apr. 28, 1995, which is a continuation of Ser. No. 217,347, Mar. 24, 1994, abandoned, which is a division of Ser. No. 12,557, Feb. 2, 1993, Pat. No. 5,324,483, Jun. 28, 1994, which is a continuation-in-part of Ser. No. 958,383, Oct. 8, 1992, abandoned.	43 of 50 TITLE: Carbocation scavenging during oligonucleotide synthesis US PAT NO: 5,510,476 23, 1996 DATE ISSUED: Apr. [IMAGE AVAILABLE] APPL-NO: 08/271,181 DATE FILED: Jul. 7, 1994	L9:
40. 5,554,501, Sep. 10, 1996, Biopolymer synthesis using surface activated biaxially oriented polypropylene; Peter J. Coassin, et al., 435/6; 436/63, 89, 94; 530/334; 536/25.3 [IMAGE AVAILABLE]	44 of 50 TITLE: Peralkylated oligopeptide mixtures US PAT NO: 5,480,971 2, 1996 DATE ISSUED: Jan. [IMAGE AVAILABLE] APPL-NO: 08/257,782 DATE FILED: Jun. 9, 1994 REL-US-DATA: Continuation-in-part of Ser. No. 79,144, Jun. 17, 1993.	
40 of 50 TITLE: Biopolymer synthesis using surface activated biaxially oriented polypropylene US PAT NO: 5,554,501 10, 1996	L9: 45. 5,403,711, Apr. 4, 1995, Nucleic acid hybridization and amplification method for detection of specific sequences in which a complementary labeled nucleic acid probe is cleaved; Joseph A. Walder, et al., 435/6, 91.2; 536/24.3 [IMAGE AVAILABLE]	
APPL-NO: 08/145,939 29, 1993 REL-US-DATA: Continuation-in-part of Ser. No. 971,100, Oct. 29, 1992, abandoned.	45 of 50 TITLE: Nucleic acid hybridization and amplification method for detection of specific sequences in which a complementary labeled nucleic acid probe is cleaved	L9:
41. 5,549,974, Aug. 27, 1996, Methods for the solid phase synthesis of thiazolidinones, metathiazanones, and derivatives thereof; Christopher P.		

US PAT NO: 5,403,711	DATE ISSUED: Apr.	TITLE: Urine testing apparatus with urinary sediment device	
4, 1995			
[IMAGE AVAILABLE]			
APPL-NO: 08/088,622	DATE FILED: Jul. 11, 1992	US PAT NO: 5,137,031	DATE ISSUED: Aug.
6, 1993			
REL-US-DATA: Continuation of Ser. No. 757,555, Sep. 11, 1991,		[IMAGE AVAILABLE]	
		APPL-NO: 07/567,758	DATE FILED: Aug.
		15, 1990	
No. 173,127,	abandoned, which is a continuation of Ser. No. 126,564, Mar. 24, 1988, abandoned, which is a continuation-in-part of Ser. No. 126,564, Nov. 30, 1987, abandoned.	REL-US-DATA: Continuation-in-part of Ser. No. 408,547, Pat. No. 5,024,238, and a continuation-in-	
		No. 411,041, Sep. 22, 1989, Pat. No.	
		4,953,561.	
46. 5,324,483, Jun. 28, 1994, Apparatus for multiple simultaneous synthesis; Donna R. Cody, et al., 422/131, 99, 101, 104 [IMAGE AVAILABLE]		50. 4,636,463, Jan. 13, 1987, Antibodies to human interleukin-2 induced by synthetic polypeptides; Amnon Altman, et al., 435/7.92; 210/502.1; 424/85.2; 435/7.93, 7.94, 810, 975; 436/547, 808, 823; 514/14; 530/300, 326, 327, 351, 387.9, 389.2; 930/10, 141, DIG.811 [IMAGE AVAILABLE]	
46 of 50		L9: 514/14; 530/300, 326, 327, 351, 387.9, 389.2; 930/10, 141, DIG.811 [IMAGE AVAILABLE]	
TITLE: Apparatus for multiple simultaneous synthesis			
US PAT NO: 5,324,483	DATE ISSUED: Jun.	50 of 50	L9:
28, 1994		TITLE: Antibodies to human interleukin-2 induced by	
[IMAGE AVAILABLE]		polypeptides	
APPL-NO: 08/012,557	DATE FILED: Feb.	US PAT NO: 4,636,463	DATE ISSUED: Jan.
2, 1993		13, 1987	
REL-US-DATA: Continuation-in-part of Ser. No. 958,383, Oct. 8, 1992, abandoned.		[IMAGE AVAILABLE]	
		APPL-NO: 06/597,179	DATE FILED: Apr.
		5, 1984	
47. 5,286,789, Feb. 15, 1994, Solid phase multiple peptide synthesis; David Okrongly, et al., 525/54.11, 54.1, 333.6, 350, 374, 379; 530/333, 334, 335, 815, 816 [IMAGE AVAILABLE]		=> s 18 and (cleav#### or releas### or separat####) (15a) (support# of link?)	
		46424 CLEAV####	
		537964 RELEAS###	
		1283318 SEPARAT####	
		814989 SUPPORT#	
		379703 LINK?	
		2825 SUPPORT# OF LINK?	
		(SUPPORT#(1W)LINK?)	
		130 (CLEAV#### OR RELEAS### OR SEPARAT####)	
		(15A) (SUPPORT# OF LIN	
		K?)	
		L10 29 L8 AND (CLEAV#### OR RELEAS### OR SEPARAT####) (15A) (SUPPO	
		RT#	
		OF LINK?)	
		=> d 1-29 cit date kwic	
48. 5,256,549, Oct. 26, 1993, Purification of synthetic oligomers; Michael S. Urdea, et al., 435/91.1, 91.3, 91.5; 530/334, 335, 336, 337, 344; 536/25.3, 25.31 [IMAGE AVAILABLE]		1. 5,877,214, Mar. 2, 1999, Polyaryl-poly(ethylene glycol) supports for	
		L9: solution-phase combinatorial synthesis; Ronald M. Kim, 514/571, 576, 650; 562/42, 426, 452, 470; 564/337, 346, 348, 355; 568/62, 607, 609 [IMAGE AVAILABLE]	
48 of 50			
TITLE: Purification of synthetic oligomers			
US PAT NO: 5,256,549	DATE ISSUED: Oct.		
26, 1993			
[IMAGE AVAILABLE]			
APPL-NO: 07/517,526	DATE FILED: Apr.		L10:
27, 1990		1 of 29	
REL-US-DATA: Continuation of Ser. No. 229,475, Aug. 3, 1988, abandoned,		TITLE: Polyaryl-poly(ethylene glycol) supports for	
		solution-phase	
		combinatorial synthesis	
No. 891,789,	which is a continuation-in-part of Ser.	US PAT NO: 5,877,214	DATE ISSUED: Mar.
		2, 1999	
	Jul. 30, 1986, abandoned, which is a continuation-in-part of Ser. No. 845,290,	[IMAGE AVAILABLE]	
Mar. 28, 1986,	abandoned.	APPL-NO: 08/923,299	DATE FILED: Sep.
		4, 1997	
49. 5,137,031, Aug. 11, 1992, Urine testing apparatus with urinary sediment device; Raouf A. Guirguis, 600/584, 575 [IMAGE AVAILABLE]		SUMMARY: BSUM(51)	
		By . . . the separation of the synthon from the	
		L9: polyvalent support it	

is preferred that the synthon be attached via a chemically the art.

****cleavable****

linker. Upon ****cleavage**** from the ****support****, the ****linked**** synthons comprise discrete molecular entities which may be analyzed for their biological activity or physiochemical properties, or which may be. . .

4. 5,861,532, Jan. 19, 1999, Solid-phase synthesis of N-alkyl amides; Edward G. Brown, et al., 564/142; 436/85, 86; 564/133, 134, 135, 136, 137, 139 [IMAGE AVAILABLE]

L10:

2. 5,876,930, Mar. 2, 1999, Hybridization assay using self-quenching fluorescence probe; Kenneth J. Livak, et al., 435/6, 5, 91.1, 91.2; 536/24.3, 24.32, 24.33, 25.3, 25.32, 26.6 [IMAGE AVAILABLE]

4 of 29
TITLE: Solid-phase synthesis of N-alkyl amides
US PAT NO: 5,861,532
19, 1999
DATE ISSUED: Jan.

[IMAGE AVAILABLE]
APPL-NO: 08/813,019
DATE FILED: Mar.
L10: 4, 1997

2 of 29

TITLE: Hybridization assay using self-quenching fluorescence probe

SUMMARY:

US PAT NO: 5,876,930
2, 1999
DATE ISSUED: Mar.

BSUM(21)

[IMAGE AVAILABLE]

APPL-NO: 08/558,303

DATE FILED: Nov.

15, 1995

REL-US-DATA: Continuation of Ser. No. 340,558, Nov. 16, 1994, Pat. No. 5,538,848.

The . . . c) either acylating the N-alkylated solid support-bound linker, thereby generating an N-alkylated solid-bound amide, or sulfonylating the N-alkylated solid ****support****-bound ****linker****, thereby generating an N-alkylated solid-support bound sulfonamide; and d) ****cleaving**** the N-alkylated solid support bound amide or sulfonamide, thereby generating the N-substituted carboxamide product or sulfonamide product, respectively.

SUMMARY:

BSUM(28)

The linkages between the solid ****support****, the ****linker**** and the probe are preferably not ****cleaved**** during removal of base protecting groups under basic conditions at high temperature. Examples of preferred linkages include carbamate and amide. . .

5. 5,859,233, Jan. 12, 1999, Synthons for synthesis of oligonucleotide N3-P5 phosphoramidates; Bernard L. Hirschbein, et al., 536/26.1, 26.12, 26.14 [IMAGE AVAILABLE]

DETDESC:

L10:

DETD(15)

5 of 29

TITLE: Synthons for synthesis of oligonucleotide N3-P5

The linkages between the solid ****support****, the ****linker**** and the probe are preferably not ****cleaved**** during removal of base protecting groups under basic conditions at high temperature. Examples of preferred linkages include carbamate and amide. . .

phosphoramidates
US PAT NO: 5,859,233
12, 1999
DATE ISSUED: Jan.

[IMAGE AVAILABLE]

APPL-NO: 08/771,789
20, 1996
DATE FILED: Dec.

REL-US-DATA: Continuation-in-part of Ser. No. 663,918, Jun. 14, 1996,

which is a continuation-in-part of Ser.

No. 603,566,
Feb. 21, 1996, Pat. No. 5,684,143.

DETDESC:

3. 5,874,532, Feb. 23, 1999, Method for solution phase synthesis of oligonucleotides and peptides; Wolfgang Pieken, et al., 530/338, 322; 536/25.3, 25.34; 562/433 [IMAGE AVAILABLE]

L10: DETD(19)

3 of 29

TITLE: Method for solution phase synthesis of oligonucleotides and peptides

US PAT NO: 5,874,532
23, 1999
DATE ISSUED: Feb.

[IMAGE AVAILABLE]

APPL-NO: 08/780,517

DATE FILED: Jan.

8, 1997

Even . . . phase oligonucleotide synthesis which involve irreversible coupling steps, considerable guidance in making selections concerning coupling conditions, protecting groups, solid phase ****supports****, ****linking**** groups, deprotection reagents, reagents to ****cleave**** products from solid phase supports, purification of product, and the like, in the context of the present invention can be. . .

DETDESC:

DETD(176)

The . . . can contain a cleavable linker between the dienophile moiety and the resin or membrane, such as an amide bond. This ****cleavable**** linker allows facile regeneration of the dienophile ****support****. ****Linkers**** such as these are well known to those skilled in

6. 5,846,731, Dec. 8, 1998, Peralkylated oligopeptide mixtures; Richard A. Houghten, et al., 435/7.1, 7.2, 7.32; 436/501, 518, 536; 530/323, 332, 333, 334, 345 [IMAGE AVAILABLE]

L10:

6 of 29

TITLE: Peralkylated oligopeptide mixtures

US PAT NO: 5,846,731	DATE ISSUED: Dec. Even . . . phase oligonucleotide synthesis which involve irreversible coupling steps, considerable guidance in making selections
8, 1998	
[IMAGE AVAILABLE]	
APPL-NO: 08/079,144	DATE FILED: Jun. concerning coupling conditions, protecting groups, solid phase
17, 1993	**supports**, **linking** groups, deprotection reagents, reagents to
SUMMARY:	**cleave** products from solid phase supports, purification of product, and the
BSUM(130)	like, in the context of the present invention can be. . .
Once . . . dichloromethane, and the support-linked peralkylated peptide set (mixture pool) is then dried. The peralkylated oligopeptide sets can then be individually **cleaved** from the solid supports to provide free peralkylated oligopeptide sets, if desired, or a solid	9. 5,821,130, Oct. 13, 1998, Combinatorial dihydrobenzopyran library; John J. Baldwin, et al., 436/518, 523, 524, 525, 526, 527, 528, 529, 530, 531; 564/183, 184, 186 [IMAGE AVAILABLE]
support--**linked** (-coupled) peralkylated oligopeptide set can be used without **cleavage** from the support.	L10: 9 of 29
	TITLE: Combinatorial dihydrobenzopyran library
	US PAT NO: 5,821,130 DATE ISSUED: Oct. 13, 1998
	[IMAGE AVAILABLE]
7. 5,840,485, Nov. 24, 1998, Topologically segregated, encoded solid phase libraries; Michal Lebl, et al., 435/6, 7.1; 436/518; 530/300, 323; 536/23.1 [IMAGE AVAILABLE]	APPL-NO: 08/552,698 DATE FILED: Nov. 3, 1995
	REL-US-DATA: Continuation-in-part of Ser. No. 436,120, May 8, 1995,
	L10: abandoned, which is a continuation-in-part of Ser. No. 239,302, May 6, 1994, abandoned.
7 of 29	
TITLE: Topologically segregated, encoded solid phase libraries	
US PAT NO: 5,840,485	DATE ISSUED: Nov. SUMMARY:
24, 1998	
[IMAGE AVAILABLE]	BSUM(157)
APPL-NO: 08/249,830	DATE FILED: May
26, 1994	
REL-US-DATA: Continuation-in-part of Ser. No. 68,327, May 27, 1993,	Compounds . . . UV light (.about.360 nm) in polar solvents such as DMSO, H.sub.2 O, or a lower alkanol such as MeOH to **cleave** the compounds of Formula II from the **support**/**linker** complex.
abandoned.	
SUMMARY:	
BSUM(9)	
5.3 DEVELOPMENT AND USE OF **SEPARATE** PHASE SYNTHESIS **SUPPORTS** AND **LINKERS** IN ENCODED MOLECULAR LIBRARY SYNTHESSES	10. 5,763,193, Jun. 9, 1998, Peralkylated oligopeptide mixtures; Richard A. Houghten, et al., 435/7.1, 7.2, 7.21; 436/501, 518 [IMAGE AVAILABLE]
	L10:
DETDDESC:	10 of 29
DETD(48)	TITLE: Peralkylated oligopeptide mixtures
	US PAT NO: 5,763,193 DATE ISSUED: Jun. 9, 1998
	[IMAGE AVAILABLE]
5.3 Development and Use of **Separate** Phase Synthesis **Supports** and **Linkers** in Encoded Molecular Library Syntheses	APPL-NO: 08/577,846 DATE FILED: Dec. 22, 1995
	REL-US-DATA: Division of Ser. No. 257,782, Jun. 9, 1994, Pat. No. 5,480,971, which is a continuation-in-part of Ser. No. 79,144, Jun. 17, 1993.
8. 5,824,793, Oct. 20, 1998, Solid phase synthesis of oligonucleotide N3'-P5' phosphoramidates; Bernard L. Hirschbein, et al., 536/25.34, 25.3, 25.33 [IMAGE AVAILABLE]	
	SUMMARY:
	L10: BSUM(153)
8 of 29	
TITLE: Solid phase synthesis of oligonucleotide N3'-P5' phosphoramidates	
US PAT NO: 5,824,793	DATE ISSUED: Oct. to drying. The peralkylated oligopeptide sets can then be individually **cleaved** from the solid supports to provide free
20, 1998	peralkylated oligopeptide sets, if desired, or a solid **support**--**linked** (-coupled) peralkylated oligopeptide set can be used without **cleavage** from the support.
[IMAGE AVAILABLE]	
APPL-NO: 08/663,918	DATE FILED: Jun.
14, 1996	
REL-US-DATA: Continuation-in-part of Ser. No. 603,566, Feb. 21, 1996,	
Pat. No. 5,684,143.	
DETDDESC:	
DETD(18)	11. 5,756,810, May 26, 1998, Process of preparing 3-nitro benzoate compounds in lower alkanol; John J. Baldwin, et al., 560/20, 23 [IMAGE

AVAILABLE]

11 of 29

TITLE: Process of preparing 3-nitro benzoate compounds in lower

alkanol
US PAT NO: 5,756,810

DATE ISSUED: May

26, 1998

[IMAGE AVAILABLE]
APPL-NO: 08/714,065

DATE FILED:

11, 1996

PCT-NO: PCT/US95/03223

PCT-FILED:

10, 1995

11, 1996

11, 1996

PCT-PUB-NO: WO95/24186

PCT-PUB-DATE: Sep.

14, 1995

SUMMARY:

BSUM(137)

The . . . Y. Compound 7 is then either exposed to UV light (.about.360 nm) in a lower alkanol such as MeOH to **cleave** the protected form of the compounds of Formula II from the **support**/**linker** complex or first treated with TFA/thioanisole/EDT to remove the protecting groups on the R.sup.2 sidechains and then exposed to UV. . .

12. 5,723,591, Mar. 3, 1998, Self-quenching fluorescence probe; Kenneth J. Livak, et al., 536/22.1, 23.1, 24.3, 25.3, 25.32 [IMAGE AVAILABLE]

12 of 29

TITLE: Self-quenching fluorescence probe

US PAT NO: 5,723,591
3, 1998

DATE ISSUED: Mar. 14.

[IMAGE AVAILABLE]
APPL-NO: 08/559,405

DATE FILED: Nov.

15, 1995

REL-US-DATA: Continuation of Ser. No. 340,558, Nov. 16, 1994, Pat. No.

5,538,848.

SUMMARY:

BSUM(28)

The linkages between the solid **support**, the **linker** and the probe are preferably not **cleaved** during removal of base protecting groups under basic conditions at high temperature. Examples of preferred linkages include carbamate and amide. . .

DETDESC:

DETD(15)

The linkages between the solid **support**, the **linker** and the probe are preferably not **cleaved** during removal of base protecting groups under basic conditions at high temperature. Examples of preferred linkages include carbamate and amide. . .

13. 5,714,606, Feb. 3, 1998, Pyrrolidine-containing monomers and oligomers; Oscar L. Acevedo, et al., 544/243, 35, 102, 104, 244, 262,

264, 267, 277, 299, 309, 311, 313, 314, 317, 335; 548/112, 314.7, 361.1,

L10: 361.5, 362.1, 362.5, 364.1, 412, 413, 414, 440, 441, 443, 444, 446, 465, 466, 467, 518, 519, 523, 524, 530, 531, 542, 546 [IMAGE AVAILABLE]

L10:

13 of 29

TITLE:

Pyrrolidine-containing monomers and

Sep. oligomers

US PAT NO:

5,714,606

DATE ISSUED:

Feb.

Mar. 3, 1998

371-DATE:

Sep. APPL-NO:

[IMAGE AVAILABLE]

DATE FILED:

Aug.

15, 1996

102(E)-DATE:

Sep. PCT-NO:

PCT/US95/00356

PCT-FILED:

Jan.

11, 1995

PCT-PUB-DATE: Sep.

371-DATE:

Aug.

15, 1996

102(E)-DATE:

Aug.

15, 1996

PCT-PUB-NO:

WO95/18792

PCT-PUB-DATE:

Jul.

13, 1995

REL-US-DATA: Continuation-in-part of Ser. No. 180,134, Jan. 11, 1994,

Pat. No. 5,519,134.

DETDESC:

DETD(19)

Chemical . . . the sequence of the oligomer. This is possible because the chemical reaction which defines the nature of the linkage is **separate** from the attachment of the monomer to the reactive group on the solid **support** (whether **linker** or the previous monomer). Specifically, when a phosphoramidite monomer is treated L10: with tetrazole and added to the solid support which. . .

Mar. 14. 5,714,332, Feb. 3, 1998, Anti .alpha.-gal screening technique; Alexander R. Lussow, et al., 435/7.1, 7.2, 7.21; 436/519; Nov. 530/300 [IMAGE AVAILABLE]

L10:

14 of 29

TITLE:

Anti .alpha.-gal screening technique

US PAT NO:

5,714,332

DATE ISSUED:

Feb.

3, 1998

[IMAGE AVAILABLE]

APPL-NO:

08/740,166

DATE FILED:

Oct.

22, 1996

SUMMARY:

BSUM(20)

In . . . of the chain while bound to a solid surface, which may be a particle, silicon chip, or other convenient solid **support**. The **linkage** which is involved will normally be either chemically or photolytically **cleavable**, so as to **release** the desired compound from the support. A wide variety of techniques have been developed for synthesizing oligomers and providing for. . .

15. 5,702,672, Dec. 30, 1997, Apparatus and method for multiple simultaneous synthesis; Sheila H. H. DeWitt, et al., 422/131, 130, 196; 435/304.1, 305.2; 530/333, 334 [IMAGE AVAILABLE]

15 of 29
 TITLE: Apparatus and method for multiple simultaneous synthesis
 US PAT NO: 5,702,672 DATE ISSUED: Dec. 2, 1997
 30, 1997
 [IMAGE AVAILABLE]
 APPL-NO: 08/540,512 DATE FILED: Oct. 22, 1994
 10, 1995
 REL-US-DATA: Continuation-in-part of Ser. No. 430,696, SUMMARY:
 Apr. 28, 1995, Pat. No. 5,612,002, which is a division of BSUM(71)
 Ser. No. 217,347, Mar. 24, 1994, abandoned, which The . . . Y. Compound 7 is then either exposed to UV
 is a division of Ser. No. 12,557, Feb. 2, 1993, Pat. No. (.about.360 nm) in a lower alkanol such as MeOH to
 5,324,483, which is a continuation-in-part of Ser. **cleave** the
 No. 958,383, Oct. 8, 1992, abandoned. protected form of the compounds of Formula II from the
 DETDESC: **support**/**linker** complex or first treated with
 DETD(252) TFA/thioanisole/EDT
 to remove the protecting groups on the R.sup.2 sidechains
 and then
 exposed to UV. . .
 18. 5,635,598, Jun. 3, 1997, Selectively cleavable linkers based on
 iminodiacetic acid esters for solid phase peptide synthesis; Michal Lebl,
 et al., 530/334, 343, 345 [IMAGE AVAILABLE]
 L10:
 16 of 29
 TITLE: Process for preparing intermediates for a combinatorial dihydrobenzopyran library
 US PAT NO: 5,688,997 DATE ISSUED: Nov. 18, 1997
 18, 1997
 [IMAGE AVAILABLE]
 APPL-NO: 08/482,488 DATE FILED: Jun. 21, 1994
 7, 1995
 REL-US-DATA: Division of Ser. No. 436,120, May 8, 1995, SUMMARY:
 which is a continuation-in-part of Ser. No. 239,302, BSUM(45)
 May 6, 1994, abandoned. The . . . directed to solid phase supports comprising
 more than one
 cleavable linker, in which at least one such linker can be
 cleaved
 with formation of a cyclic structure, e.g., a
 diketopiperazine, attached
 to the solid phase **support**. The **linkers** can further
 comprise a
 linker such that upon **cleavage**, the diketopiperazine is
 attached to
 the **released** peptide. In a further embodiment, the
 ester bond linkage
 can be to a reactive carboxylic acid, such as
 hydroxymethylbenzoic acid..
 . .
 DETDESC:
 DETD(19)
 In one embodiment, the linkers of the invention
 release a peptide
 alcohol upon formation of a diketopiperazine, which remains
 on the solid
 phase **support**. Such **linkers** are termed herein
 "diketopiperazine
 (DKP) linkers." The present invention is based in part on
 the observation
 that peptide coupled to. . .
 17. 5,663,046, Sep. 2, 1997, Synthesis of combinatorial libraries; John
 J. Baldwin, et al., 435/6, 7.1; 436/501, 518, 531, 533;
 530/333, 334;
 536/18.5, 25.3 [IMAGE AVAILABLE]
 19. 5,618,825, Apr. 8, 1997, Combinatorial sulfonamide library; John J.

Baldwin, et al., 514/317, 330; 546/227, 229, 232, 233, 234, 235; 548/543, 556, 569 [IMAGE AVAILABLE]

19 of 29
 TITLE: Combinatorial sulfonamide library
 US PAT NO: 5,618,825 DATE ISSUED: Apr. 8, 1997
 [IMAGE AVAILABLE]
 APPL-NO: 08/482,489 DATE FILED: Jun. 7, 1995
 REL-US-DATA: Division of Ser. No. 212,024, Mar. 11, 1994.

SUMMARY:
 BSUM(112)

The . . . Y. Compound 7 is then either exposed to UV light (.about.360 nm) in a lower alkanol such as MeOH to **cleave** the protected form of the compounds of Formula II from the **support**/**linker** complex or first treated with TFA/thioanisole/EDT to remove the protecting groups on the R.sup.2 sidechains and then exposed to UV. . . .

20. 5,587,471, Dec. 24, 1996, Method of making oligonucleotide libraries; Phillip D. Cook, et al., 536/25.3, 25.4, 25.41 [IMAGE AVAILABLE]

20 of 29
 TITLE: Method of making oligonucleotide libraries
 US PAT NO: 5,587,471 DATE ISSUED: Dec. 24, 1996
 [IMAGE AVAILABLE]
 APPL-NO: 08/179,972 DATE FILED: Jan. 11, 1994

SUMMARY:
 BSUM(4)

There . . . support-coupled monomeric repeating units, such as amino acids, by reacting the monomeric units with solid supports and mixing the solid **supports** **linked** to the monomeric units to form a reaction product pool. Thereafter the reaction pool is **separated** into a number of aliquots of equal weight and the process is repeated to produce peptides of a desired length.

21. 5,567,391, Oct. 22, 1996, Apparatus for multiple simultaneous synthesis; Sheila H. H. DeWitt, et al., 422/131, 130, 196; 435/304.1, 305.2 [IMAGE AVAILABLE]

21 of 29
 TITLE: Apparatus for multiple simultaneous synthesis
 US PAT NO: 5,567,391 DATE ISSUED: Oct. 22, 1996
 [IMAGE AVAILABLE]
 APPL-NO: 08/464,161 DATE FILED: Jun. 5, 1995
 REL-US-DATA: Continuation of Ser. No. 430,696, Apr. 28, 1995, which is a continuation of Ser. No. 217,347, Mar. 24, 1994, abandoned, which is a division of Ser. No. 12,557, Feb.

22. 5,565,173, Oct. 15, 1996, Apparatus and method for multiple simultaneous synthesis; Sheila H. H. DeWitt, et al., 422/131, 130, 196; 435/304.1, 305.2 [IMAGE AVAILABLE]

L10: 22 of 29
 TITLE: Apparatus and method for multiple simultaneous synthesis
 US PAT NO: 5,565,173 DATE ISSUED: Oct. 15, 1996
 [IMAGE AVAILABLE]
 APPL-NO: 08/461,998 DATE FILED: Jun. 5, 1995
 REL-US-DATA: Continuation of Ser. No. 430,696, Apr. 28, 1995, which is a continuation of Ser. No. 217,347, Mar. 24, 1994, abandoned, which is a division of Ser. No. 12,557, Feb.

DETDESC:
 DETD(254)

The three possible **cleavage** model are illustrated. **Cleavage** 1 represents the third building block attacking the solid **support** **linkage** to **cleave** the final molecule. This provides structural variation at the former site of attachment to the support. L10: **Cleavage** 2 represents a distal functionality attacking the solid **support** **linkage** to **cleave** the final molecule as a cyclized product. **Cleavage** 3 represents a **cleavage** by an invariant agent. This provides a constant functional group at the former site of attachment to the support. ##STR2##

23. 5,554,501, Sep. 10, 1996, Biopolymer synthesis using surface activated biaxially oriented polypropylene; Peter J. Coassin, et al., 435/6; 436/63, 89, 94; 530/334; 536/25.3 [IMAGE AVAILABLE]

2, 1993, Pat. No. 5,324,483, Jun. 28, 1994, which is a continuation-in-part of Ser. No. 958,383, Oct. 8, 1992, abandoned.

23 of 29
 TITLE: Biopolymer synthesis using surface activated
 biaxially oriented polypropylene
 US PAT NO: 5,554,501
 10, 1996
 [IMAGE AVAILABLE]
 APPL-NO: 08/145,939
 29, 1993
 REL-US-DATA: Continuation-in-part of Ser. No. 971,100,
 Oct. 29, 1992, abandoned.

APPL-NO: 08/088,622
 L10: 6, 1993
 REL-US-DATA: Continuation of Ser. No. 757,555, Sep. 11,
 1991, abandoned, which is a continuation of Ser.
 No. 173,127,
 Mar. 24, 1988, abandoned, which is a
 continuation-in-part of Ser. No. 126,564,
 Nov. 30, 1987,
 abandoned.

DETDESC:
 DETD(64)
 Additionally, . . . be utilized in conjunction with
 linkers and
 spacer arms for the synthesis of biopolymers. These can be
 amenable to
 either non-**cleavage** or **cleavage** protocols for non-
 removal or
 removal of the synthesized biopolymer from the polymer
support.
Linkers and spacer arms applicable to the synthesis of
 biopolymers,
 particularly oligonucleotides and peptides, are well known
 and varied and
 will. . .

24. 5,480,971, Jan. 2, 1996, Peralkylated oligopeptide
 mixtures; Richard
 A. Houghten, et al., 530/328, 329 [IMAGE AVAILABLE]

24 of 29
 TITLE: Peralkylated oligopeptide mixtures
 US PAT NO: 5,480,971
 2, 1996
 [IMAGE AVAILABLE]
 APPL-NO: 08/257,782
 9, 1994
 REL-US-DATA: Continuation-in-part of Ser. No. 79,144,
 Jun. 17, 1993.

SUMMARY:
 BSUM(150)
 Once . . . (IPA), three with DCM and one with methanol
 (MeOH) prior
 to drying. The peralkylated oligopeptide sets can then be
 individually
cleaved from the solid supports to provide free
 peralkylated
 oligopeptide sets, if desired, or a solid **support**-
linked
 (-coupled) peralkylated oligopeptide set can be used
 without **cleavage**
 from the support.

25. 5,403,711, Apr. 4, 1995, Nucleic acid hybridization
 and
 amplification method for detection of specific sequences in
 which a
 complementary labeled nucleic acid probe is cleaved; Joseph
 A. Walder, et
 al., 435/6, 91.2; 536/24.3 [IMAGE AVAILABLE]

25 of 29
 TITLE: Nucleic acid hybridization and amplification
 method for
 complementary detection of specific sequences in which a
 labeled nucleic acid probe is cleaved
 US PAT NO: 5,403,711
 4, 1995
 [IMAGE AVAILABLE]

APPL-NO: 08/012,557
 L10: 2, 1993
 REL-US-DATA: Continuation-in-part of Ser. No. 958,383,
 Oct. 8, 1992, abandoned.

DETDESC:
 DETD(254)
 The three possible **cleavage** modes are illustrated.
Cleavage 1
 represents the third building block attacking the solid
support
linkage to **cleave** the final molecule. This provides
 structural
 variation at the former site of attachment to the support.
Cleavage 2
 represents a distal functionality attacking the solid
support
linkage to **cleave** the final molecule as a cyclized
 product.
Cleavage 3 represents a **cleavage** by an invariant
 agent. This
 provides a constant functional group at the former site of
 attachment to
 the support. ##STR2##

27. 5,286,789, Feb. 15, 1994, Solid phase multiple peptide
 synthesis;
 David Okrongly, et al., 525/54.11, 54.1, 333.6, 350, 374,
 L10: 379; 530/333,
 334, 335, 815, 816 [IMAGE AVAILABLE]

L10:
 Apparatus for multiple simultaneous
 synthesis
 US PAT NO: 5,324,483
 28, 1994
 [IMAGE AVAILABLE]
 APPL-NO: 08/012,557
 2, 1993
 REL-US-DATA: Continuation-in-part of Ser. No. 958,383,
 Oct. 8, 1992, abandoned.

DETDESC:
 DETD(254)
 The three possible **cleavage** modes are illustrated.
Cleavage 1
 represents the third building block attacking the solid
support
linkage to **cleave** the final molecule. This provides
 structural
 variation at the former site of attachment to the support.
Cleavage 2
 represents a distal functionality attacking the solid
support
linkage to **cleave** the final molecule as a cyclized
 product.
Cleavage 3 represents a **cleavage** by an invariant
 agent. This
 provides a constant functional group at the former site of
 attachment to
 the support. ##STR2##

27 of 29
 TITLE: Solid phase multiple peptide synthesis
 US PAT NO: 5,286,789
 Apr. 15, 1994
 [IMAGE AVAILABLE]

APPL-NO: 08/041,901 DATE FILED: Apr. 326, 327, 351, 387.9, 389.2; 930/10, 141, DIG.811 [IMAGE AVAILABLE]
 -2, 1993
 REL-US-DATA: Continuation of Ser. No. 671,671, Mar. 19, 1991,
 abandoned, which is a continuation of Ser. 29 of 29
 No. 357,987, May 26, 1989, abandoned.

ABSTRACT: Methods . . . cyclical addition of protected monomers. Reagents are specifically selected to allow for efficient reproducible addition, while maintaining transparency of the **support**. **Linkers** are provided which permit retention of the oligopeptide to the surface or **release** of the oligopeptide at completion of the preparation of the oligopeptide. The oligopeptide bound to the support finds use in. . .

28. 5,137,031, Aug. 11, 1992, Urine testing apparatus with urinary sediment device; Raouf A. Guirguis, 600/584, 575 [IMAGE AVAILABLE]

28 of 29
 TITLE: Urine testing apparatus with urinary sediment device
 US PAT NO: 5,137,031 DATE ISSUED: Aug. 11, 1992
 [IMAGE AVAILABLE]
 APPL-NO: 07/567,758 DATE FILED: Aug. 9, 1990
 REL-US-DATA: Continuation-in-part of Ser. No. 408,547, Sep. 18, 1989,
 Pat. No. 5,024,238, and a continuation-in-part of Ser. No. 411,041, Sep. 22, 1989, Pat. No. 4,953,561..

SUMMARY:
 BSUM(21)

TABLE 6

Column	Part- icle	Cross- size	Column size length (cm) .times.	Ionic form (.mu.m) i.d. (mm) Examples of	Manufacturers
Aminex HPX-87N	8	Sodium	9 30 .times. 7.8	Raffinose, sucrose, Bio-	Rade
Aminex HPX-87K					

29. 4,636,463, Jan. 13, 1987, Antibodies to human interleukin-2 induced by synthetic polypeptides; Amnon Altman, et al., 435/7.92; 210/502.1; 424/85.2; 435/7.93, 7.94, 810, 975; 436/547, 808, 823; 514/14; 530/300,

CLAIMS:

CLMS (10)

10. . . . comprising the steps of:
providing a substrate having a surface with linkers having an active site for oligonucleotide synthesis, the linkers being resistant to cleavage under cleavage conditions;
synthesizing an ensemble of sequence-specific oligonucleotides in an area of the substrate under a test condition, the oligonucleotides having active sites. . .

2. 5,679,773, Oct. 21, 1997, Reagents and methods for immobilized polymer synthesis and display; Christopher P. Holmes, 530/334; 430/56; 530/333, 345 [IMAGE AVAILABLE]

US PAT NO: 5,679,773 [IMAGE AVAILABLE]

L12: 2 of 2

SUMMARY:

BSUM(6)

Improved . . . 90/15070) and Fodor et al., PCT Publication No. WO 92/10092, all incorporated herein by reference, disclose methods of forming vast arrays of peptides, oligonucleotides and other polymer sequences using, for example, light-directed synthesis techniques. See also, Fodor et al., Science, 251:767-777 (1991), also incorporated herein by reference for all purposes. These procedures. . .

DRAWING DESC:

DRWD(3)

FIGS. . . . linking group. FIGS. 2A and 2B show the reactions which produce the two thiazolidinones. FIGS. 2C and 2D show the HPLC chromatograms of the resulting thiazolidinones and illustrate the purity of each.

DETDESC:

DETD(121)

This method comprises first synthesizing a labeled polymer on a solid support. Subsequent cleavage of the labeled polymer from the support and comparison with known standards provides a confirmation of synthesis fidelity. The precise method of synthesis is not critical and can be carried out by any of the solid phase methods described in the General section. . .

DETDESC:

DETD(123)

The . . . groups, or spacers, L^{sup.1} are not critical but are present to permit subsequent synthesis to proceed without interference from the support. However, the bond, spacer or linking group must be cleavable under conditions which do not degrade the synthesized polymer. The linking groups or spacers, when present (i.e., not a bond) are typically 3-50 atoms long and have a. . .

DETDESC:

DETD(176)

As . . . both 50% TFA/CH₂Cl₂ and 95% TFA/H₂O for one hour. No decomposition of either linking group was observed by HPLC.

DETDESC:

DETD(179)

Commercially . . . with 100 μ L of 50% CH₃CN/H₂O and again centrifuged. The collected filtrates from each sample were analyzed by HPLC for the presence of thiazolidinone. See FIG. 2. The data indicated that both the thiazolidinones were produced in high purity. . .

(FILE 'USPAT' ENTERED AT 12:35:49 ON 15 MAR 1999)

SET HIGH OFF
ACTIVATE COMLIB/Q

L1 QUE (LIBRAR#### OR ARRAY# OR MULTIP##### OR COLLECTION#

L2 14398 S L1
 SET HIGH ON
L3 144 S L2 AND (CLEAV#### OR RELESE#### OR SEPARAT####) (15A) (
SUP
L4 41 S L2 AND (CLEAV#### OR RELESE#### OR SEPARAT####) (10A) (
SUP
L5 36 S L4 NOT FD>1995
L6 19 S L2 AND (CLEAV#### OR RELESE#### OR SEPARAT####) (10A) (
SUP
L7 52 S L2 AND (CLEAV#### OR RELESE#### OR SEPARAT####) (10A) (
SUP
L8 82 S L2 AND (PHOTOCHEMIC? OR PHOTOLITHOGRAP? OR LIGHT (2W) DI
REC
L9 25 S L8 AND (CLEAV#### OR RELESE#### OR SEPARAT####) (10A) (
SUP
L10 5 S L8 AND (CLEAV#### OR RELESE#### OR SEPARAT####) (10A) (
SUP

=> S L10 AND gc OR hplc OR MASS SPECTR? OR GEL ELECTROPHORESIS OR PAGE

14764 GC
28295 HPLC
310562 MASS
225803 SPECTR?
28300 MASS SPECTR?
 (MASS (W) SPECTR?)
165482 GEL
23180 ELECTROPHORESIS
14497 GEL ELECTROPHORESIS
 (GEL (W) ELECTROPHORESIS)
118035 PAGE

L11 164529 L10 AND GC OR HPLC OR MASS SPECTR? OR GEL ELECTROPHORESIS O

5650 489

1. 5,843,655, Dec. 1, 1998, Methods for testing oligonucleotide arrays; Glenn McGall, 435/6; 436/518, 527, 528 [IMAGE AVAILABLE]

L10: 1 of 5

TITLE: Methods for testing oligonucleotide arrays
US PAT NO: 5,843,655 DATE ISSUED: Dec. 1, 1998
[IMAGE AVAILABLE]
APPL-NO: 08/531,155 DATE FILED: Sep. 18, 1995

SUMMARY:

BSUM(13)

Also provided are methods of determining the extent of depurination of oligonucleotides synthesized on a substrate by spatially directed oligonucleotide synthesis. One method involves providing a substrate having a surface with linkers having an active site for oligonucleotide synthesis, the linkers being resistant to cleavage under cleavage conditions; synthesizing an ensemble of sequence-specific oligonucleotides in an area of the substrate, the oligonucleotides having active sites for attaching a detectable label; attaching a detectable label to the oligonucleotides in the ensemble; exposing the ensemble to a test condition; exposing the ensemble to cleavage conditions that cause cleavage of depurinated oligonucleotides; and determining the amount of detectable label in the area.

SUMMARY:

BSUM(14)

The other method for testing extent of depurination involves providing a substrate having a surface with linkers having an active site for oligonucleotide synthesis, the linkers being resistant to cleavage under cleavage conditions; synthesizing an ensemble of sequence-specific oligonucleotides in an area of the substrate by spatially directed oligonucleotide synthesis under a test condition, the oligonucleotides having active sites for attaching a detectable label; attaching a detectable label to the active sites; exposing the ensemble to cleavage conditions that cause cleavage of depurinated oligonucleotides; and determining the amount of detectable label in the area.

DETDESC:

DETD(3)

This invention provides methods for optimizing the production, storage and use of oligonucleotide arrays produced by spatially directed oligonucleotide synthesis and, in particular, light-directed oligonucleotide synthesis. The methods involve testing arrays produced under a variety of conditions used in the preparation of substrates, the synthesis of nucleic acids on those substrates and the post-production handling, storage, shipment or use of the manufactured biological chips. The invention also provides the ability to test many conditions on a single chip, allowing greater control over the testing process. Also, the ability to test a variety of combinations of conditions on a single chip provides increased flexibility and screening capacity. As used in quality control procedures for manufacturing oligonucleotide arrays, the methods can involve manufacturing the arrays in high volume, and testing selected arrays for various quality parameters such as nucleotide coupling efficiency; amount of deprotection of oligonucleotides; oligonucleotide integrity, e.g., amount of depurination; or amount of double stranded oligonucleotides in the array. Manufacturing arrays in high volume means manufacturing at least 10, 50, 500, 1000, 2000, 5000 or 10,000 oligonucleotide arrays per day from a single fabricating machine or in a single fabrication facility.

DETDESC:

DETD(5)

In one embodiment oligonucleotide arrays are synthesized at specific locations by light-directed oligonucleotide synthesis. The pioneering techniques of this method are disclosed in U.S. Pat. No. 5,143,854; PCT WO 92/10092; PCT WO 90/15070; and U.S. application Ser. Nos. 08/249,188, 07/624,120, and 08/082,937, incorporated herein by reference for all purposes. The basic strategy of this process is outlined in FIG. 1. The surface of a solid support modified with linkers and photolabile protecting groups (sup. about. O--X) is illuminated (hv) through a photolithographic mask (Mask 1) yielding reactive hydroxyl

groups (HO) in the illuminated regions. A 3'-O-phosphoramidite-activated deoxynucleoside (protected at the 5'-hydroxyl with a photolabile group, T--X) is then presented to the surface and coupling occurs at sites that were exposed to light. Following the optional capping of unreacted active sites and oxidation, the substrate is rinsed and the surface is illuminated (hv) through a second mask (M.sub.2), to expose additional hydroxyl groups for coupling to the linker. A second 5'-protected, 3'-O-phosphoramidite-activated deoxynucleoside (C--X) is presented to the surface. The selective photodeprotection and coupling cycles are repeated until the desired set of products is obtained. Photolabile groups are then optionally removed and the sequence is, thereafter, optionally capped. Side chain protective groups, if present, are also removed. Since photolithography is used, the process can be miniaturized to generate high-density arrays of oligonucleotide probes. Furthermore, the sequence of the oligonucleotides at each site is known.

DETDESC:

DETD (59)

In another embodiment, fluorescent probes are employed in combination with CCD imaging systems. Details of this method are described in U.S. application Ser. No. 08/301,051, incorporated herein by reference in its entirety. In many commercially available microplate readers, typically the light source is placed above an array, and a photodiode detector is below the array. For the present methods, the light source can be replaced with a higher power lamp or laser. In one embodiment, the standard absorption geometry is used, but the photodiode detector is replaced with a CCD camera and imaging optics to allow rapid imaging of the array. A series of Raman holographic or notch filters can be used in the optical path to eliminate the excitation light while allowing the emission to pass to the detector. In a variation of this method, a fiber optic imaging bundle is utilized to bring the light to the CCD detector. In another embodiment, the laser is placed below the oligonucleotide array and light directed through the transparent wafer or base that forms the bottom of the oligonucleotide array. In another embodiment, the CCD array is built into the wafer of the oligonucleotide array.

CLAIMS:

CLMS (2)

2. A method for determining the amount of depurination of oligonucleotides synthesized on a substrate by spatially directed oligonucleotide synthesis comprising the steps of:
providing a substrate having a surface with linkers having an active site for oligonucleotide synthesis, the linkers being resistant to cleavage under cleavage conditions;
synthesizing an ensemble of sequence-specific oligonucleotides in an area of the substrate, the oligonucleotides having active sites for attaching a detectable label;
attaching a detectable label to the oligonucleotides in the ensemble;
exposing the ensemble to a test condition;
exposing the ensemble to cleavage conditions that cause cleavage of depurinated oligonucleotides; and
determining the amount of detectable label in the area, said amount of detectable label being a determination of said amount of depurination.

CLAIMS:

CLMS (10)

10. A method for determining the amount of depurination of oligonucleotides synthesized on a substrate by spatially directed oligonucleotide synthesis comprising the steps of:
providing a substrate having a surface with linkers having an active site for oligonucleotide synthesis, the linkers being resistant to cleavage under cleavage conditions;
synthesizing an ensemble of sequence-specific oligonucleotides in an area of the substrate under a test condition, the oligonucleotides having active sites for attaching a detectable label;
attaching a detectable label to the active sites;
exposing the ensemble to cleavage conditions that cause cleavage of depurinated oligonucleotides; and
determining the amount of detectable label in the area, said amount of detectable label being a determination of said amount of depurination.

2. 5,770,455, Jun. 23, 1998, Methods and apparatus for synthesizing labeled combinatorial chemistry libraries; John Cargill, et al., 436/518; 435/4; 436/524, 525, 526, 527, 528; 530/334 [IMAGE AVAILABLE]

TITLE: Methods and apparatus for synthesizing labeled
combinatorial chemistry libraries
US PAT NO: 5,770,455 DATE ISSUED: Jun. 23, 1998
[IMAGE AVAILABLE]
APPL-NO: 08/480,438 DATE FILED: Jun. 7, 1995
REL-US-DATA: Division of Ser. No. 383,766, Feb. 2, 1995, which is a
continuation-in-part of Ser. No. 180,863, Jan. 13, 1994,
abandoned, which is a continuation-in-part of Ser. No.
92,863, Jul. 19, 1993, abandoned.

SUMMARY:

BSUM(53)

In another recent development, scientists combined the techniques of photolithography, chemistry and biology to create large collections of oligomers and other compounds on the surface of a substrate (this method is called "VLSIPS.TM."). See, for example, U.S. Pat. No. 5,143,854; PCT Publication No. 90/15070; PCT Publication No. 92/10092 entitled "Very Large Scale Immobilized Polymer Synthesis," Jun. 25, 1992; Fodor et al., "Light-Directed Spatially Addressable Parallel Chemical Synthesis," Science 251: 767-773 (1991); Pease et al., "Light-Directed Oligonucleotide Arrays for Rapid DNA Sequence Analysis," Proc. Natl. Acad. Sci. 91: 5022-5026 (1994); and Jacobs & Fodor, "Combinatorial Chemistry: Applications of Light-Directed Chemical Synthesis," Trends. Biotechnology 12(1): 19-26 (1994), each of which is incorporated herein by reference.

SUMMARY:

BSUM(98)

The present invention also relates to methods and apparatus for synthesizing labeled libraries of random oligomers. The random oligomers are generally synthesized on synthesis supports, but may be cleaved from these supports or synthesized in solution phase to provide a soluble library. In a preferred embodiment the oligomers are composed of a set of monomers, the monomers being any member of the set of atoms or molecules that can be joined together to form an oligomer or polymer. The library is then screened to isolate individual oligomers that bind to a receptor or possess some desired property. In a preferred embodiment, each oligomer structure in the library is unique.

3. 5,679,773, Oct. 21, 1997, Reagents and methods for immobilized polymer synthesis and display; Christopher P. Holmes, 530/334; 430/56; 530/333, 345 [IMAGE AVAILABLE]

L10: 3 of 5

TITLE: Reagents and methods for immobilized polymer synthesis and
display
US PAT NO: 5,679,773 DATE ISSUED: Oct. 21, 1997
[IMAGE AVAILABLE]
APPL-NO: 08/374,492 DATE FILED: Jan. 17, 1995

SUMMARY:

BSUM(6)

Improved methods of forming large arrays of oligonucleotides, peptides and other polymer sequences in a short period of time have been devised. Of particular note, Pirrung et al., U.S. Pat. No. 5,143,854 (see also PCT Application No. WO 90/15070) and Fodor et al., PCT Publication No. WO 92/10092, all incorporated herein by reference, disclose methods of forming vast arrays of peptides, oligonucleotides and other polymer sequences using, for example, light-directed synthesis techniques. See also, Fodor et al., Science, 251:767-777 (1991), also incorporated herein by reference for all purposes. These procedures are now referred to as VLSIPS.TM. procedures.

DETDESC:

DETD(121)

This method comprises first synthesizing a labeled polymer on a solid support. Subsequent cleavage of the labeled polymer from the support and comparison with known standards provides a confirmation of synthesis fidelity. The precise method of synthesis is not critical and can be carried out by any of the solid phase methods described in the General section above. In order to obtain a solid substrate-bound polymer having the formula above, the synthesis will typically proceed by first attaching a linking group or spacer, L_{sup.1}, to the solid support.

DETDESC:

DETD(123)

The linking groups, or spacers, L.sup.1 are not critical but are present to permit subsequent synthesis to proceed without interference from the support. However, the bond, spacer or linking group must be cleavable under conditions which do not degrade the synthesized polymer. The linking groups or spacers, when present (i.e., not a bond) are typically 3-50 atoms long and have a surface attaching portion and a functional group for covalent attachment to the label attaching group. The surface attaching portion is that part of L.sup.1 which is directly attached to the solid support. This portion can be attached to the solid support via carbon-carbon bonds using, for example, supports having (poly)trifluorochloroethylene surfaces, or preferably, by siloxane bonds (using, for example, glass or silicon oxide as the solid support). Siloxane bonds with the surface of the support are formed in one embodiment via reactions of surface attaching portions bearing trichlorosilyl or trialkoxysilyl groups. The spacer will also have a site for attachment of the label attaching group. For example, groups which are suitable for attachment to such a group would include amines, hydroxyl, thiol, and carboxyl. Thus, preferred linking groups or spacers, are those molecules derived from aminoalkylsilanes and hydroxyalkylsilanes. In particularly preferred embodiments, the spacer L.sup.1 is derived from bis(2-hydroxyethyl)aminopropyl-triethoxysilane, 2-hydroxyethylaminopropyltriethoxysilane, aminopropyltriethoxysilane or hydroxypropyltriethoxysilane.

4. 5,677,195, Oct. 14, 1997, Combinatorial strategies for polymer synthesis; James L. Winkler, et al., 436/518; 422/134, 149; 435/6, 7.92, 970, 973; 436/89, 527, 528; 530/333, 334, 335; 536/25.3, 25.31, 25.32
[IMAGE AVAILABLE]

L10: 4 of 5

TITLE: Combinatorial strategies for polymer synthesis
US PAT NO: 5,677,195 DATE ISSUED: Oct. 14, 1997
[IMAGE AVAILABLE] DISCL-DATE: Jan. 24, 2012
APPL-NO: 07/980,523 DATE FILED: Nov. 20, 1992
REL-US-DATA: Continuation-in-part of Ser. No. 796,243, Nov. 22, 1991,
Pat. No. 5,384,261, and Ser. No. 874,849, Apr. 24, 1992,
Pat. No. 5,412,087.

SUMMARY:

BSUM(4)

Improved methods of forming large arrays of peptides, oligonucleotides, and other polymer sequences in a short period of time have been devised. Of particular note, Pirrung et al., U.S. Pat. No. 5,143,854 (see also PCT Application No. WO 90/15070) and Fodor et al., PCT Publication No. WO 92/10092, all incorporated herein by reference, disclose methods of forming vast arrays of peptides and other polymer sequences using, for example, light-directed synthesis techniques. See also, Fodor et al., Science (1991) 251:767-777, also incorporated herein by reference for all purposes.

DETDESC:

DETD(86)

By adjusting the thickness of the synthesis support matrix, the quantity of immobilized material in the reaction regions can be controlled. For example, relatively thin support synthesis matrices can be used to produce small amounts of surface bound oligomers for analysis, while thicker support matrices can be used to synthesize relatively large quantities of oligomers which can be cleaved from the support for further use. In the latter embodiment, a collector having dimensions matching the individual synthesis supports can be employed to collect oligomers that are ultimately freed from the reaction matrix.

5. 5,585,275, Dec. 17, 1996, Pilot apparatus for peptide synthesis and screening; Derek Hudson, et al., 436/518; 422/68.1, 99, 129; 436/523, 524, 527, 528, 529, 531; 530/333, 334 [IMAGE AVAILABLE]

L10: 5 of 5

TITLE: Pilot apparatus for peptide synthesis and screening
US PAT NO: 5,585,275 DATE ISSUED: Dec. 17, 1996
[IMAGE AVAILABLE]
APPL-NO: 08/079,741 DATE FILED: Jun. 18, 1993
REL-US-DATA: Continuation-in-part of Ser. No. 939,065, Sep. 2, 1992.

SUMMARY:

BSUM(14)

The Affymax "chip" approach described in PCT publication WO90/10570, and in Fodor, P. A. et al, Science, 251 (1991) 767, is a method for multiple peptide synthesis on a solid support which uses synthesis and fluorescent detection on the silica surfaces of flow through cells, photolabile protecting groups and photolithographic masking strategies to make arrays. Photolabilely-blocked amino groups are chemically attached (bonded) to a silicon chip, then irradiated through a patterned mask to selectively remove the blocking groups in a pre-arranged pattern. An amino acid will bond by addition only to the irradiation exposed areas. Additional masks are imposed and radiation applied as a prelude to adding second amino acids. Each amino acid added can include a blocking group so that further addition to that site occurs only after irradiation unblocking. Repeating the process with plural masks builds location specific polypeptides. When the chip is exposed to the target molecule, it may stick to one or more locations. By checking coordinates on a map of the chip, the peptide is identified. However, this process does not work with target molecules stuck to, or part of, cells, and there are exposure problems during processing, i.e., some AA's are light sensitive and cannot be used. Further, the reactions at the surface are not complete; for example, where reaction completion is only 90%, by the 6th iteration to obtain a hexapeptide, only half of them will be made properly.

DETDESC:

DETD(21)

Because of the effectiveness of the support system of this invention, the separate zones (one or more support address area(s)) can be functionalized for synthesis of peptides at loadings as low as about 0.001 micromoles per cm.² usually in the range of from about 0.05 to about 50. μ mole/area, and 50-100 nmole loading for HPMP winks.